SECTION 14. That Article XIV, "Green Building Regulations", hereby is repealed and re-enacted with amendments as follows:

ARTICLE XIV. GREEN BUILDING REGULATIONS

DIVISION 1. GENERALLY

Sec. 5-301. Scope.

This article places additional "green building" requirements on certain sizes and various types of new construction and redevelopment activities within Rockville.

Sec. 5-302. Building Code Compliance Required.

Requirements of this article are meant to be cumulative and more stringent than Articles 1-13. In no case will this Article be interpreted to reduce the stringency of those requirements set out in Articles 1-13.

Sec. 5-303. Green Building Applicability.

(a) Except as provided in subsection (b) of this Section 5-303, for the purposes of this Article, these requirements shall apply to construction of all new buildings, and the following additions and alterations to buildings:

(1) Additions of 7,500 gsf or more to an existing non-residential or multi-unit residential building;

(2) Alterations of more than 50% of the gsf of a non-residential or multi-unit residential building if the altered area is 7,500 gsf or larger;

(3) Alterations to existing one and two family dwellings and additions meeting the criteria for "new construction" as defined in Article VI.

(b) The requirements of this Article XIV shall not be applicable to the following:

(1) Special Exceptions and any subsequent amendments thereto, and related site plans and any subsequent amendments thereto, where a Pre-application or formal application for the Special Exception has been made prior to July 1, 2010, and any related permits for construction;

(2) Site Plans (Level 1, 2, and 3), and any subsequent amendments thereto, and Project Plans and any subsequent amendments thereto, where a Pre-application, or formal application, has been made prior to July 1, 2010, and any related permits for construction.

Exception: Subsequent internal fit-out applications and related permits must comply with the provisions of this Article XIV;

(3) All permits applied for prior to July 1, 2010; and

(4) All trade permits associated with building permits or single-family dwelling permits, where application for the building permit or single-family dwelling permit has been made prior to July 1, 2010.

Sec. 5-304. Buildings and Structures Exempt.

The following construction is exempt from the requirements of this Article:

(a) Accessory buildings and structures, as defined by 25.09.03 of the Rockville City Code;

(b) Alterations of existing LEED®-certified or LEED®-equivalent certified, non-residential or multi-unit residential buildings.

(c) Additions and alterations to existing LEED®-certified or LEED® equivalent-certified one and two family dwellings.

Sec. 5-305. Certification Not Required.

Compliance with this Article does not require a construction project to obtain certification from the U.S. Green Building Council or any other "green" certification organization. The City, as described in Division 2 of this Article, shall perform evaluation for compliance with the provisions of this Article.

Secs. 5-306 - 5-310. Reserved.

DIVISION 2. ADMINISTRATION AND ENFORCEMENT

Sec. 5-311. Administration.

The Chief of Planning or his/her designee will review projects for compliance with this Article during the design phase of new construction. This includes:

(a) Reviewing the submitted LEED® or LEED®-equivalent credit checklists and supporting documentation for completeness and accuracy, as it pertains to site development;

(b) Ensuring that project teams contain individuals with appropriate credentials, such as a LEED® Accredited Professional;

The Chief of Inspection Services Division or his/her designee will review projects for compliance with this Article during the design phase of new construction. This includes:

(a) Reviewing the submitted LEED® or LEED®-equivalent credit checklist and supporting documentation for completeness and accuracy, as it pertains to building construction;

Sec. 5-312. Enforcement.

The Chief of Inspection Services Division or his/her designee will review projects for compliance with this Article during construction and prior to occupancy. This includes:

(a) Ensuring that buildings have been constructed to meet the appropriate green standards per their design;

(b) Ensuring appropriate materials, appliances and equipment are installed, as required;

(c) Reviewing required building/homeowner maintenance manuals, if required for credit;

(d) Ensuring waste management requirements have been fulfilled, if required for credit.

Sec. 5-313. Waivers and Modifications.

The Chief of Planning or the Chief of Inspection Services Division may modify the provisions of this Article as appropriate to accommodate historic preservation considerations.

Secs. 5-314 - 5-315. Reserved.

DIVISION 3. DEFINITIONS

Sec. 5-316. Definitions.

Words defined in this article are intended only for use with sections of this article or any document referred to in this article.

ANSI means the American National Standards Institute.

Building means a structure having one (1) or more stories and a roof, designed primarily for the shelter, support, or enclosure of persons, animals, or property of any kind; and is not an accessory building as defined in 25.09.03 of this Code.

City Manager means the City Manager for the City of Rockville, or his/her designee.

ENERGY STAR means the joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy designed to identify and promote energy-efficient products and practices.

EPA means the U.S. Environmental Protection Agency.

Green Building means a holistic approach to design, construction and demolition that minimizes the building's impact on the environment, the occupants and the community.

GSF means gross square footage. GSF is the sum of all areas on all floors of a building included within the outside faces of the exterior walls, including floor penetration areas, however insignificant, for circulation and shaft areas that connect one floor to another.

HERS Index means the relative energy use index created by RESNET, where a HERS Index of 100 represents the energy use of the "American Standard Building" (i.e., built to the 2009 International Energy Conservation Code) and an Index of 0 (zero) indicates that the Proposed Building uses no net purchased energy (a Zero Energy Building).

HERS Standards means the Home Energy Rating System Standards from RESNET.

LEED® means the Leadership in Energy and Environmental Design green building rating system, 2009 version, from the U.S. Green Building Council. Individual rating systems, and the associated checklists, have been created for several different building categories.

LEED® *Accredited Professional* (LEED® AP) means a green building industry professional certified by the Green Building Certification Institute as having demonstrated a thorough understanding of green building and the LEED® Green Building Rating System.

LEED® *credit checklist* means the checklist created by the USGBC detailing the total points possible for each of the LEED® rating systems.

LEED®*-equivalent* means energy and environmental design standards that the City Manager may approve as being equivalent to a corresponding LEED® rating of a given LEED® rating system.

Multi-Unit Residential means residential structures not governed by the provisions of Article VI of this Chapter.

National Green Building Standard (NGBS) means the ANSI-approved residential green building standard released by the National Association of Home Builders (NAHB) in coordination with the International Code Council (ICC). For multi-unit and low-rise residential buildings, the NGBS may be used as a LEED®-equivalent rating system.

National Performance Path means the set of requirements set forth by ENERGY STAR to achieve an ENERGY STAR Qualified Home designation by demonstrating home energy performance.

National Prescriptive Path means the set of requirements set forth by ENERGY STAR (also known as the Builder Option Package) as detailed on Table 5-352 for achieving an ENERGY STAR Qualified Home designation.

Non-Residential means commercial, industrial, institutional, governmental and the non-residential portions of mixed-use developments.

RESNET means the Residential Energy Services Network, a not-for-profit standards-making body for building energy efficiency rating systems.

RESNET certified rater means a certified home energy rater that has successfully completed training by a RESNET Accredited Rater Training Provider and has been certified by a RESNET Accredited Rating Provider.

USGBC means the U.S. Green Building Council, creator and maintainer of the LEED® green building rating system.

Secs. 5-317 - 5-320. Reserved.

DIVISION 4. NON-RESIDENTIAL AND MULTI-UNIT RESIDENTIAL GREEN BUILDINGS

Sec. 5-321. Applicability.

The requirements of this Division shall be applicable to non-residential and multi-unit residential buildings as indicated in Section 5-303 of this Article.

Sec. 5-322. LEED® AP on Project Team.

All construction meeting the requirements of Section 5-303 shall have a LEED® Accredited Professional (LEED® AP) on the project team from design of the project through construction to facilitate the requisite integrated design process. If a LEED®-equivalent rating system is used, a member of the project team must possess an equivalent certification for that rating system.

Sec. 5-323. LEED® Credit Checklist Required.

All non-residential and multi-unit residential buildings must submit a completed LEED® credit checklist with supporting documentation for the most appropriate LEED® rating system, or a LEED®-equivalent rating system with every submittal to the City.

Sec. 5-324. Compliance - New Construction and Core & Shell.

All new construction of non-residential and multi-unit residential buildings as indicated in Section 5-303 shall achieve at least 25 points in the appropriate LEED® 2009 rating system with at least five points earned from the following list:

(a) SS c5.1: Site Development - Protect or Restore Habitat
(b) SS c5.2: Site Development - Maximize Open Space
(c) SS c6.1: Stormwater Design - Quantity Control
(d) SS c6.2: Stormwater Design - Quality Control
(e) SS c7.1: Heat Island - Non-roof
(f) SS c7.2: Heat Island - Roof
(g) WE c2: Innovative Wastewater Technologies
(h) WE c3: Water Use Reduction
(i) EA c1: Optimize Energy Performance
(j) EA c2: On-site Renewable Energy
(k) EA c6: Green Power
(l) MR c1.1: Building Reuse - Maintain Existing Walls, Floors and Roof - Reuse 55%
(m) MR c2: Construction Waste Management – 50%

Sec. 5-325. Compliance - Commercial Interiors

All new construction meeting the scope of 2009 LEED® for Commercial Interiors Rating System (as detailed in "Overview and Process") shall obtain at least 10 points based upon the 2009 LEED® for Commercial Interiors Rating System. New construction meeting 2009 LEED® for Commercial Interiors Rating System that is taking place in an existing LEED® certified building shall not be required to meet the requirements of this Section.

Sec. 5-326. ENERGY STAR Requirements.

(a) The following types of building components used in the dwelling units of multi-family residential projects and portions of non-residential and multi-residential projects shall meet or exceed U.S. EPA's ENERGY STAR requirements: ceiling fans, ventilation fans, programmable thermostats and exit signs.

(b) The lighting in common areas, including lobbies, corridors, stairwells, common rooms, fitness rooms, etc. will incorporate maximum day lighting and will install energy efficient fixtures including: light bulbs, light sensors, motion sensors, timers, and interior design (e.g., paint color) that maximizes energy efficiency. The guidelines outlined by the US Green Building Council's LEED® for Commercial Interiors (LEED-CI) credit entitled, Optimizing Energy Performance: Lighting Power will be used to evaluate the lighting efficiency.

Sec. 5-327. Building Manual(s) Required.

The builder must submit to the owner or occupant a manual that explains the intent, benefits, use and maintenance of any green building features. Multi-unit residential projects must also develop a guide for homeowners and tenants that explains the intent, benefits, use and maintenance of any green building features relevant to individual units.

Secs. 5-328 - 5-330. Reserved.

DIVISION 5. ONE AND TWO FAMILY DWELLING REQUIREMENTS

Sec. 5-331. Applicability.

The requirements of this Division shall be applicable to one and two family dwellings as indicated in Section 5-303 of this Article.

Sec. 5-332. Green Building Checklist Required.

All one- and two-family dwelling new construction, as defined in Article VI, must submit either the NGBS checklist, the LEED® for Homes credit checklist, or a LEED®-equivalent checklist with every submittal to the City.

Sec. 5-333. ENERGY STAR Requirements.

To the extent that the building includes the following buildings components, these components shall meet or exceed U.S. EPA's Energy Star requirements: windows, ceiling fans, ventilation fans (including kitchen and bathroom fans), and programmable thermostats.

Sec. 5-334. Rockville Energy Efficient Homes required.

Homes must meet the Rockville Energy Efficient Homes criteria as specified in Table 5-334.

Exception: Homes may qualify for Rockville Energy Efficient Homes by achieving a HERS Index of 85 or lower, rather than follow the criteria in Table 5-334.

TABLE 5-334
ROCKVILLE ENERGY EFFICIENT HOMES CRITERIA

Envelope	Infiltration[1], ≤ 3ACH50, and Completed Thermal Bypass Inspection Checklist[2]
Windows[4,5]	≤ 0.40SHGC
Lighting	Lighting packages must consist of a minimum of 75% high efficacy, ENERGY STAR qualified hard-wired fixtures, and All installed ceiling fans must be ENERGY STAR qualified.

Notes

1. A RESNET-certified rater using a RESNET-approved testing protocol must determine envelope leakage.
2. The Thermal Bypass Checklist requires visual inspection of framing areas where air barriers are commonly missed and inspection of insulation to ensure proper alignment with air barriers, thus serving as an extra check that the air and thermal barriers are continuous and complete.
3. All windows and skylights must be ENERGY STAR qualified or meet all specifications for ENERGY STAR qualified windows. Windows must exceed and the SHGC ≤ 0.40.

Sec. 5-335. Indoor Air Package Required.

Homes must meet the Indoor Air Package specifications shown on Table 5-335.

TABLE 5-335
INDOOR AIR PACKAGE SPECIFICATIONS

1. Moisture Control	
Water Managed Foundations	
1.1	Surface water management shall be provided as follows: • Patio slabs, walks and driveway shall be sloped ¼ inch per foot away from house.
1.2	Install drain tile at footings below basement and crawlspace walls, level or sloped to discharge to outside grade (daylight) or to accessible sump pump. Top of drain tile pipe must always be below bottom of concrete slab or crawl space floor. Pipe shall be surrounded with min. 6 inches of ¾ inch washed or clean gravel that is fully wrapped with fabric cloth.
1.3	Crawl spaces shall be unvented and conditioned, as follows: • Crawl space floors shall be covered with a capillary break, using either: - Concrete slab over lapped polyethylene (i.e. a "rat slab"); OR. - 6 mil. polyethylene (10 mil. recommended) sheeting, lapped 6 to 12 inches and sealed or taped at seams. Sheeting shall be attached to walls and piers with adhesive and furring strips; AND • Crawl spaces shall be sealed to prevent outside air infiltration and be provided with conditioned air at a rate not less than 0.02 cfm per square foot of horizontal area; and • In areas designated by local jurisdiction as flood zones, a sump pit and pump shall be installed in the crawlspace, with discharge point at least 10 ft. outside foundation. **Exceptions:** • Raised pier foundation with no walls.
1.4	Do **not** install a continuous vapor barrier on interior or living space side of basement or crawlspace walls (semi-vapor permeable rigid insulation is not considered a vapor barrier).
Water Managed Wall Assemblies	
1.5	Install flashing or equivalent drainage system at the bottom of exterior walls to direct water away from drainage plane and foundation.
1.6	Prevent condensation problems (e.g. mold and rot) related to air leakage in exterior wall assemblies, by meeting all wall assembly requirements of the Thermal Bypass Checklist.
1.7	Fully flash all window and door openings, including pan flashing at sills, side flashing that extends over pan flashing and top flashing that extends over side flashing.
1.8	All deck ledger boards shall be attached to homes with either: • Minimum 3/8 inch spacers and full flashing shingle fashion from drainage plane to over framing; OR • Adhesive membrane strip taped to drainage plane running over ledger board and folded around joists over hanger with adhesive membrane cap patch over each joist.

	Advisory: If ledger is ACQ preservative-treated lumber, flashing material should be ACQ resistant to prevent corrosion.
Water Managed Roof Assemblies	
1.9	Prevent condensation problems (e.g. mold and ice dams) related to air leakage at attic/ceiling interfaces, by meeting all roof assembly requirements of the Thermal Bypass Checklist.
1.10	Direct roof water from house with guttering and downspouts that empty to lateral piping that deposit water on sloping finish grade a minimum of 5 ft. from foundation. When lot space limits or prevents required grading, direct roof water to underground catchment system (not connected to foundation drain system) that deposits water 10 ft. from foundation.
1.11	Install minimum No. 30 roof felt underlayment.
1.12	Install metal drip edge or equivalent at roof decking edges.
1.13	Install self-sealing bituminous membrane or equivalent at all valleys and roof decking penetrations for durability at failure points.
Plumbing Systems	
1.14	Minimize risk of water leakage & material damage in areas with high risk for plumbing leaks, including: • Install water heaters near floor drain and/or provide catch pan, piped to home exterior, AND • Install moisture resistant backing material behind tub and shower enclosures (i.e. cement board or equivalent).
2. Radon Control	
2.1	Provide owners of homes two radon test kits designed for 48-hour exposures, including instructions for use and guidance for follow-up actions to testing results.
3. HVAC Systems	
Heating and Cooling Equipment	
3.1	Heating & cooling design loads shall be determined for each room according to ACCA Man J, ASHRAE Handbooks, or equivalent software. Heating & cooling equipment shall be properly sized and selected to meet the design loads, including accommodation for pressure drop from specified filter (4.18). This requirement shall be verified by: • Documentation of design load calculations (i.e. load calculation worksheet or software report), AND • System design documentation (i.e. sizing calculations and equipment performance information), AND • Verification that outdoor and indoor coils match in accordance with ARI standards.
3.2	Air handling equipment shall not be located in garages.
3.3	No equipment is permitted that intentionally produces ozone (rather than as an incidental by-product).
3.4	Drain pans shall be sloped, corrosion resistant (e.g. stainless or plastic) with drains at the low point.
3.5	HVAC and duct systems shall be protected from dust/debris during construction activities: • If HVAC equipment is not used during construction, supply and return duct boots shall be covered with "duct mask" or similar sheeting to keep ductwork clean, OR • If HVAC equipment is used during construction, a properly fitting filter (see 4.18 & 4.19) must be installed during operation.
Ductwork	
3.6	Building cavities shall not be used as part of the forced air supply or return system.
Ventilation	
3.7	Provide mechanical whole-house ventilation meeting all ASHRAE 62.2 requirements. The following requirements shall be visually verified: • Whole house mechanical ventilation system & controls installed to deliver prescribed outdoor air ventilation rate (62.2 section 4); AND • Transfer air (i.e. air from adjacent dwelling units or other spaces such as garages, crawlspaces, or attics) shall not be used to meet ventilation requirements (62.2 section 6.1); AND • Air inlets shall be located a minimum of 10 ft. from contaminant sources (62.2 section 6.8), AND • Airflow tested to meet rated fan airflow (at 0.25 in. w.c.), or duct(s) sized per requirements of 62.2 Table 7.1 and/or manufacturer's design criteria (62.2 section 7.3). **Notes:** • Outdoor air ducts connected to the return side of an air handler shall be permitted as supply ventilation only if manufacturers' requirements for return air temperature are met (e.g., "air shall be tempered to maintain minimum 60 degree F continuous air flow across furnace heat exchanger").
Air Filtration	
3.8	There shall be no visible bypass between the filter, the filter rack, and the plenum/blower housing. In addition, the filter rack shall be designed to ensure the filter is in complete contact with the rack as follows: • The filter rack shall be fitted with flexible, air-tight (e.g. closed cell foam) gasketing on the surface that contacts the air-leaving (downstream) side of the filter, or equivalent method; AND • The filter shall be held firmly in place by friction fit, spring clips in the filter rack (installed on the upstream side of the filter), or equivalent method.

	Note: Manufacturer filter media boxes designed to accomplish these purposes meet these requirements.
3.9	If central vacuum system is installed, system shall be vented outdoors at least 10 ft. from ventilation system air inlets (see 4.15), or power/filtration unit installed in garage per manufacturer instructions.
4. Building Materials	
Preparation and Installation	
4.1	Building materials with visible signs of water damage or mold shall not be installed. In addition, interior walls shall not be enclosed (e.g. with drywall) if either the framing members or insulation products have a high moisture content.
Materials	
4.3	Structural plywood conforming to PS1 and PS2 and oriented strand board shall be made with exterior-type adhesives. Exterior-type adhesive is evidence by the appearance of "Exposure 1" or "Exterior" in the panel trademark.
4.4	Particleboard and medium density fiberboard (MDF) shall be certified compliant with ANSI A208.1 and A208.2, respectively.
4.5	Hardwood plywood shall be compliant with ANSI/HPVA HP-1-2004 and U.S. HUD Title 24, Part 3280.
4.7	Install concrete or water-resistant hard-surface flooring in kitchens, laundry areas, and utility rooms.
5. Owner's Documentation	
5.1	Provide owner or occupant with a checklist listing all required measures from this specification along with the signature of official representative of builder indicating full compliance with the checklist.

Sec. 5-336. Homeowner Manual Requirement.

The builder must develop and submit to owner or occupant a guide that explains the intent, benefits, use and maintenance of green building features. Compliance with NGBS 1001.1 is deemed to meet this requirement.

Secs. 5-338 - 5-340. Reserved.

The effective date of this ordinance is July 1, 2012. All permit applications submitted on or after that date shall comply with this ordinance.

I hereby certify that the foregoing is a true and correct copy of an ordinance adopted by the Mayor and Council at its meeting of June 18, 2012.

Douglass A. Barber

Douglass A. Barber, City Clerk/Treasurer